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THE BRISTOL
MEDICO-CHIRURGICAL JOURNAL
A Journal of the Medical Sciences for the
WEST OF ENGLAND AND SOUTH WALES

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Editorial

PULMONARY EMBOLISM

Once a month the medical staff of the United Bristol Hospitals meet to consider the recent deaths. One of the results of this practice is that the members quickly become aware of any striking changes in the incidence of fatal illnesses. Mr. M. G. Wilson's article in this issue is based on a survey of the hospital records that he undertook at the request of the medical staff who had become alarmed by the apparent increase in deaths from massive pulmonary embolism. The figures he now presents confirm their fears. Massive pulmonary embolism has become a sufficiently frequent hazard to justify a full investigation of the problem and the Board of Governors has appointed Mr. E. W. Parry, F.R.C.S., as a whole-time research assistant for this purpose.

The problem is not a new one and it is not confined to Bristol; in fact in some hospitals in the United States it is customary to tie the iliac veins, or even the inferior vena cava, as soon as femoral venous thrombosis is diagnosed, so as to prevent a pulmonary embolism.

A curious feature of the incidence of massive pulmonary embolism is that it appears to be commoner in some hospitals than in others. An excellent study of the condition in Southmead Hospital, Bristol, by Dr. D. S. Short in the *British Medical Journal* on April 12th, 1952, has shown a lower incidence of massive embolism in that hospital, although minor embolism and infarction were common. An annotation in the same journal says " It is now fully realized that fatal pulmonary embolism is a rare condition ": that unfortunately is not true everywhere—but why ? Many possible explanations of the recent increase come to mind: intravenous therapy, new anaesthetics and antibiotics; all these must be assessed. But the problem is really divisible into two parts—why venous thrombosis occurs and why the thrombus is liberated into circulation. Patients frequently have venous thrombosis in their lower limbs but mercifully few of them suffer embolism. Is it that venous thrombosis is now more frequent or is it that some agency causes the loosening of thrombi from their site of formation ? It will require a careful clinical study to evaluate the many procedures, such as leg exercises, designed to prevent thrombosis; and it is equally important to discover what factor favours liberation of the thrombus as a dangerous embolus. It may be just a question of how much propagation clot is formed in the large vein above the initial thrombotic site, for such clots are lightly attached, but it is perhaps more likely that some fibrinolytic agency is responsible for dissolving their attachment to the vessel walls. R. G. Macfarlane at Oxford has investigated the titre of naturally occurring fibrinolysin in the blood of patients before, during and after operation and has found an increase quite often before the operation begins ! He has tentatively correlated this with the observation that embolism was more frequent during the air raids. Can it be that alarm is responsible ? There is evidence that adrenalin increases the fibrinolyisn titre and here is a possible explanation of the association.

Several bacteria are known to produce active fibrinolysins. It is possible that infection of the blood stream by relatively non-pathogenic fibrinolysin-producing bacteria may be responsible for loosening thrombi.

It will be appreciated that Mr. Parry has a big field to investigate. The problem is real and urgent and the co-operation of all the medical and nursing staff will be needed for its solution.

MEDICAL JOURNAL OF THE SOUTH-WEST

As part of the policy to enlarge this journal to represent medical activities in the whole South-West Region, the *Bristol Medico-Chirurgical Society* has decided to alter the title to *Medical Journal of the South-West*. At the same time the Law governing the composition of the editorial committee has been amended to permit the appointment of members from other societies and centres. We hope these steps will enable the Journal to become more closely associated with those in the Region outside the Bristol area.

The first number of the next volume in January, 1953, will appear under the new title.

THE DIAGNOSIS OF ABDOMINAL EMERGENCIES IN CHILDREN*

BY

R. E. HORTON, *M.B.E.*, F.R.C.S.

Lecturer in Surgery, University of Bristol; Assistant Surgeon, United Bristol Hospitals

Abdominal pain in children, although frequently of little significance, may sometimes be sinister and indicate the beginning of a serious pathological process. It is the fear of the consequences of an untreated acute abdominal emergency which makes the care of a child with abdominal pain one of anxiety and responsibility. The child who suffers from recurrent umbilical pain is in a position of particular danger, for the knowledge that previous pain has been of trivial significance and that it has resolved quickly and spontaneously may dull the sensibility of the observer; it is thus that acute appendicitis will progress under such a diagnostic mask as mesenteric adenitis until perforation occurs and general peritonitis is established.

Acute appendicitis is the most common surgical emergency of children, but in babies intussusception is an additional cause of severe abdominal colic. These two conditions, their variants, and the pitfalls which they may occasion, are the chief subject of discussion in this review.

It has rightly become the practice to regard the malignant tumours of infants and children as surgical emergencies. Some observations on the management of Wilms's tumour of the kidney are therefore not out of place in a paper devoted to the abdominal emergencies of children.

ACUTE APPENDICITIS

Appendicitis may occur at any age, though it is rare under two years and uncommon under four years. It is more dangerous in children than in adults and a heavier penalty is paid for delayed or mistaken diagnosis. Localization of infection in the peritoneal cavity is far less effective in children, partly because the greater omentum is a relatively slender structure and is imperfect in surrounding and walling-off an area of inflammation. Thus children's appendicitis in its early stages differs little from appendicitis in adults, but there are no adhesions and the omentum is rarely found wrapped round the appendix. It is this failure of the omentum to set up a defence barrier which gives appendicitis in children its sinister reputation. The operation of appendicectomy is one of particular ease. But when perforation of the appendix takes place the whole peritoneal cavity is contaminated with pus.

Many children exhibit the classical sequence of symptoms: pain begins in the middle of the abdomen and later radiates to the right iliac fossa and vomiting

* Based on a paper given to the Bristol Medico-Chirurgical Society on 9th April, 1952.

or nausea is complained of after the pain has been present for some time. The pulse and temperature are elevated, the tongue is furred, and there is guarding and tenderness in the right iliac fossa. But unfortunately many cases do not show these characteristic features, or the sequence is atypical. In these the general practitioner is posed a most difficult problem of diagnosis. When the pathological process has been allowed to proceed unchecked for forty-eight or seventy-two hours the diagnosis is all too clear and the newly-qualified resident wonders how such delay could have been countenanced by an experienced practitioner.

But delay often occurs before the doctor is called in. We live in an age when a bottle of medicine is expected for every ill. The doctor who does not distribute medicine may lose his reputation among his patients. In the family circle many mothers still consider a right to control the bowels of their children is vested in them. Aperients are distributed and bowels are " turned out ". This does little harm to the children and much good to the manufacturers. Unfortunately the onset of abdominal pain may be greeted as an immediate indication to give a laxative. Castor oil used to be given, but syrup of figs is now more popular and many children with the abdominal pain of appendicitis have received at least one dose before the doctor is called in. In addition to the danger of perforation which this occasions, there is a period of delay while the effects of the dose are awaited.

Pain is the most common initial symptom of appendicitis. It may not be very severe, however, and in a few cases is not present at the onset. In these, vomiting, or less often, diarrhoea occurs before pain is complained of. Diarrhoea is well known in pelvic appendicitis, but is often present in children irrespective of the position of the appendix and may herald a particularly acute attack. In these cases there is considerable danger that a diagnosis of enteritis may be made in the early stages. Guarding is not a very reliable sign and is frequently absent, especially in cases in which the appendix is retrocaecal. But tenderness is always present and usually it is maximal somewhere in the right iliac fossa. The temperature is usually raised but in some cases it may be normal. Thus the combination of pain in the abdomen and tenderness in the right iliac fossa are the features which should excite a strong suspicion that a child has acute appendicitis, but it must be emphasized that in some cases the pain is not at all severe.

If the attack is allowed to proceed resolution may take place and will be accompanied by abatement of the symptoms. But it is more likely that the appendix will perforate. In some cases, particularly of pelvic appendicitis, perforation will be followed by the formation of a local abscess. There will be symptoms attributable to the position of the abscess. If it is in the pelvis there will be tenesmus and rarely retention of urine. At the same time the temperature becomes more elevated and the tongue more furred. Careful examination may disclose that a lump is present, and this is especially likely if the pelvic part of the peritoneal cavity is examined with a finger in the rectum, for the tone of the abdominal muscles may conceal a lump from abdominal palpation. In other cases perforation will be followed by general peritonitis. It is not always possible in looking back over the history of a patient admitted late and with general peritonitis, to say when perforation took place. There is no sudden episode of severe pain as in perforation of a peptic ulcer. On the contrary, the relief of tension inside the appendix which accompanies perforation may result in a

considerable degree of relief from pain. Thus the symptoms of general peritonitis may be misjudged or not even recognized. The child becomes progressively more ill with fever, a dry furred tongue, and other signs of dehydration. The abdomen becomes gradually more distended and it is silent in consequence of paralytic ileus which accompanies peritonitis. Vomiting and constipation are present, though vomiting is not necessarily severe if the jejunum is not affected by the paralytic process. It is not common for children to be admitted in this condition, but a few are admitted to the Children's Hospital in the course of every year and some of these may die.

The diagnosis is easy in late cases, but those which confront the practitioner in the first twenty-four hours may tax his diagnostic skill to the utmost. Acute non-specific mesenteric adenitis is a common cause of abdominal pain and is the disease most often confused with appendicitis. There are two points of some value in the differential diagnosis. Mesenteric adenitis is usually accompanied by a nasopharyngeal infection; and the episodes of abdominal pain are frequently recurrent. In some cases there is no abdominal tenderness and then appendicitis can be excluded. But in other patients with the abdominal pain of mesenteric adenitis there is tenderness in the right iliac fossa and although the clinical picture is not identical with that of typical acute appendicitis the latter cannot be excluded. In these cases it is far safer to admit the child to hospital and submit him to an exploratory operation and appendicectomy than to await the development of the later stages of appendicitis.

INTUSSUSCEPTION

This malady, far less common than appendicitis, is generally confined to infants of four to eighteen months. The typical clinical features of intussusception are well known. After a few hours or more of discomfort during which the baby whimpers and cannot sleep, severe abdominal colic begins. During the attacks of pain the baby usually draws up his legs and screams with pain. As the episode passes off he lies quite still and the face assumes a characteristic pallor. Blood is passed in the stool or stains the finger cot after rectal examination. Careful abdominal palpation discloses a mass in the epigastrium or less often on the left side of the abdomen. Many cases present such a history, but in others one or more of the classical signs may not be observed. The amount of bleeding depends on the tightness of the intussusception and it is absent in about fifty per cent of cases. The tumour may be concealed under the liver margin and then it will not be felt by the most careful observer. If there is a strong suspicion of intussusception the child should be admitted to hospital for observation. In many cases suspicion will be strong enough to justify laparotomy without completion of the classical triad of pain, tumour and blood in the stools. In some doubtful cases a barium enema may be used to establish the diagnosis but enemata should never be used therapeutically. In later cases there are signs of intestinal obstruction; constipation is absolute and vomiting severe. The abdomen is distended and shows the typical ladder pattern of distended small bowel. In these children the intussusception has been present for forty-eight hours or more. They are in very serious danger, probably with gangrene of the intussuscepted bowel.

Recurrence of intussusception occurs in about two per cent of cases. The mother may then recognize the symptoms and bring the baby to hospital with

the diagnosis made, as happened recently at the Children's Hospital. In these recurrent cases a small bowel tumour may be present. When intussusception occurs in older children it is nearly always secondary to a benign or malignant neoplasm of the bowel. The diagnosis in these rare cases is difficult. There is colicky abdominal pain, evidence of small-intestine obstruction and possibly a palpable tumour.

MECKEL'S DIVERTICULUM

No discussion on the surgical emergencies of children would be complete without a note on the complications of Meckel's diverticulum, for these are most likely to occur in early life. Blood in the stool is a common symptom in young children and infants, but when the bleeding is severe it probably comes from ulceration in a Meckel's diverticulum.

Meckel's diverticulum may invaginate into the ileum and become the apex of an intussusception. It may also be the site of acute inflammatory changes indistinguishable clinically from acute appendicitis. But the wide mouth of Meckel's diverticulum makes it less likely to become infected and indeed acute diverticulitis is very uncommon.

When the diverticulum remains attached to the umbilicus by a persistent cord, the child lives in danger of intestinal obstruction resulting from kinking of a loop of small bowel across the persistent band. In such cases there is nothing to guide the clinician as to the cause of an established intestinal obstruction. Moreover, if the obstruction is high there will be copious vomiting without abdominal distension, and then even the diagnosis of obstruction will be difficult.

WILMS'S TUMOUR

It is now clear that the appalling results of treatment of this tumour can be improved if treatment by operation can be carried out immediately. The diagnosis is generally clear on clinical grounds, though an intravenous pyelogram may be indicated to confirm it. Nephrectomy should be performed on the day the diagnosis is established or as soon after as is possible. In this way, as little time as possible is left for pulmonary metastases to become established. There must be one day in which tumour cells are confined to the kidney and another in which the first vanguard of cancer reaches the lungs. The sooner operation is done the less likely is this to have taken place. Another danger is that of repeated examination. A Wilms's tumour is soft, cellular, and vascular. Repeated palpation of an interesting tumour by inexperienced students learning to feel an enlarged kidney invites the dissemination of malignant cells. The only certain way of stopping examination is to take the tumour out. So long as it is still in the patient it should be treated with the utmost delicacy and as urgently as a case of acute appendicitis, operation being delayed only long enough to ensure that blood is available for transfusion. Pre-operative radiation is not worth the delay which it causes and should only be given when the tumour is so large as to be thought inoperable. In these cases radiation causes shrinkage of the tumour and may make it removable, but cure is then very unlikely.

CONCLUSION

The abdominal emergencies of children provide many problems of diagnosis. The most difficult problem concerns the significance of abdominal pain. It is

more important to decide whether or not the pain is due to serious abdominal disease than to know its precise cause. Many children have typical symptoms but in others the signs are unusual and the history conflicting. While some of these may be watched safely at home, there is a risk in delaying their admission to hospital until advanced and dangerous pathological processes have occurred. If serious doubt exists advantage should be taken of the added facilities for observation which exist in hospital. Should serious abdominal disease then be confirmed surgical intervention can be arranged without further delay.

UNEXPLAINED INCREASE OF FATAL PULMONARY EMBOLUS AT THE BRISTOL ROYAL INFIRMARY IN 1950

BY

MICHAEL G. WILSON, F.R.C.S.
Senior Surgical Registrar, Bristol Royal Infirmary

Monthly meetings are held by the staff of the United Bristol Hospitals to discuss recent deaths of patients. At these meetings in 1950 a marked

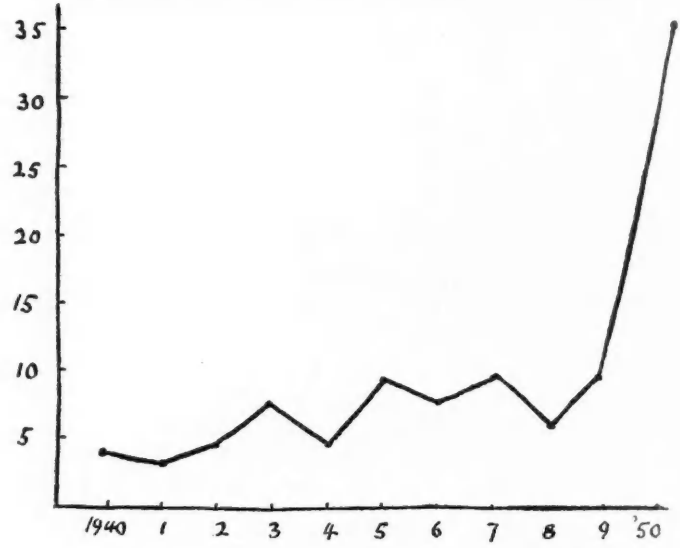

Fig. 1. Annual deaths from pulmonary embolus, 1940–50

increase in the numbers of deaths from pulmonary embolism was noticed, and it was decided to look further into the matter to find out whether the increase was in fact real, and whether it could be attributed to any particular cause.

Only those cases of pulmonary embolus actually proved by autopsy have been considered, and the inquiry was limited to the Royal Infirmary Branch and therefore includes only medical, surgical, orthopaedic and skin cases.

A study of the annual incidence of fatal pulmonary embolism from 1940 to 1950 showed a gradual slight increase from 1940 to 1949, and then in 1950, a

sudden rise to a figure over three times the previous highest (Fig. 1.). In 1950 there were 35 deaths from this cause and in no previous year had there been more than 10.

In the first part of this paper the 1950 cases are analysed in some detail, and in the second part possible causes of the increase are examined.

ANALYSIS OF THE 1950 CASES

Of the 35 fatal pulmonary emboli, 3 cases may have been pulmonary artery thromboses and in a further 2 the thrombus originated in the auricles of the heart, leaving 30 cases, in 27 of which the source of the embolus was found in the peripheral veins. This analysis applies to the group of 30 cases.

Age and sex incidence. More than half of the patients were over 60, and about three-quarters were over 50. Fig. 2 gives the age distribution in decades. There were 17 males and 13 females.

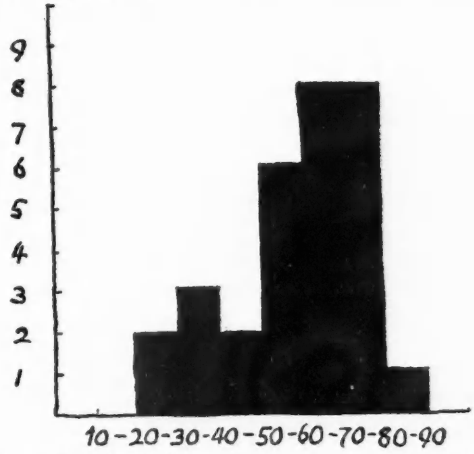

Fig. 2. Age distribution in decades of fatal embolus patients.

Diagnosis. It will be seen (Table 1) that half the patients were suffering either from malignant disease or from heart disease. It may be noted here that in the four cases with heart disease a fatal embolus arose in three in the leg and in one only in the auricle. The remainder form a heterogeneous group predominantly of surgical conditions.

TABLE 1

Underlying disease in 30 *cases of fatal pulmonary embolus*

Malignant disease . .	11	D.U. and Pulmonary T.B.	1
Heart disease . .	4	D.U. and Hydronephrosis	1
Acute appendicitis . .	2	D.U.	1
Acute diverticulitis . .	2	Strangulated L.I.H. . .	1
Enlarged prostate . .	2	Fractured tib. and fib. . .	1
Ulcerative colitis	1	Anorexia nervosa	1
Acute cholecystitis. . . .	1	Cataract	1

Category. It was not easy to decide in all cases whether the pulmonary embolus was the sole cause of death. In some it was a terminal event in a patient already moribund. Four categories of cases seemed to emerge. Thus there were seven patients who were already dying, and the embolus was not necessarily a massive one. Four were suffering from incurable disease (e.g. irremovable carcinoma) but they would probably have left hospital alive had they not had a pulmonary embolus. Ten more were suffering from serious conditions but might well have made complete recoveries. Finally nine were suffering from essentially curable conditions and their death was completely unexpected.

In the first two categories the patient's death was perhaps a merciful release, but in the other two groups containing 19 patients it was a catastrophe.

Operations. 21 out of 30, or about two-thirds of the patients had had operations of which 7 were for pelvic conditions. In some the operative procedure had been very small, such as the extraction of a cataract or the biopsy of a submental gland. Another patient with an enlarged prostate had been in hospital only three days and was up and about the ward still waiting to have his operation.

Postoperative day. In 19 cases in which the embolism followed within two months of operation it occurred as follows:

Weeks after operation	1	2	3	4	5	6	7	8
No. of cases ..	6	5	4	1	1	1	0	1

Ambulation. Of the 17 operated cases in which information about ambulation was recorded 9 had been out of bed during the first week after operation.

One of the advantages that was hoped would follow early ambulation was a diminution in the incidence of pulmonary embolism. This does not seem to be the case, and on reflection it seems unreasonable to hope that it would be so—after all, it is not the half-hour up on the day after operation which counts so much as the remaining twenty-three and a half hours spent in bed. One would expect a patient, wearied by an unwelcome and painful exertion, to lie all the stiller on his return to bed. The emphasis surely should be not so much on getting patients up early as on making them move about frequently in bed.

In the "old days" of complete confinement to bed for 10 to 14 days after operation, pulmonary embolus occurred most commonly in the second or third week and was a rare event; now it seems to occur most frequently in the first week after operation and is more common. Out of 6 patients who got their embolus in the first week after operation, 5 were already ambulant, it may well be that early ambulation dislodges some clots which might later become adherent if the major effort of getting out of bed is postponed.

Intravenous drips. 11 patients had had fluids administered by intravenous drips, and this included about half the operated cases. Whether the drips were into the arm or into the leg was not recorded, but most patients who have drips for any length of time have them into the leg at some stage. The introduction of foreign bodies and foreign substances into veins, coupled with the immobility of the leg which a drip necessitates, might predispose to thrombus formation: but

there was no sudden increase in the use of drips in 1950 to account for the increase in emboli.

Premonitory signs. It is too much to expect that a search through patients' notes will give accurate information on this score. However in 6 cases the notes recorded that there were clinical signs in the legs to suggest a deep venous thrombosis. In 11 cases autopsy showed the existence of small recent infarcts in the lungs indicating that the fatal embolus had been preceded by smaller ones. Five patents had received heparin.

Site of dislodgement of clot. In all cases except one the venous tree had been carefully opened and searched at post-mortem examination and the sites of dislodgement of clots were found to be as follows:

Pelvic veins	1
Femoral veins	21
Popliteal or calf veins ..	5
No thrombus found in peripheral veins	2
No search made ..	1

It is probable that in nearly all cases the commencement of the thrombotic process was in the small veins of the calf and that propagation clot spread steadily upwards in the larger veins until the junction of the femoral and profunda veins was reached. This is the commonest launching site for a pulmonary embolus.

POSSIBLE FACTORS CAUSING AN INCREASE IN PULMONARY EMBOLUS

Effect of increase in numbers of admissions, operations and autopsies

The sudden increase of fatal emboli in 1950 cannot be explained by the increase in numbers of admissions or of operations, for these had been gradual. Fig. 3 gives the incidence of death from pulmonary embolus expressed as a per-

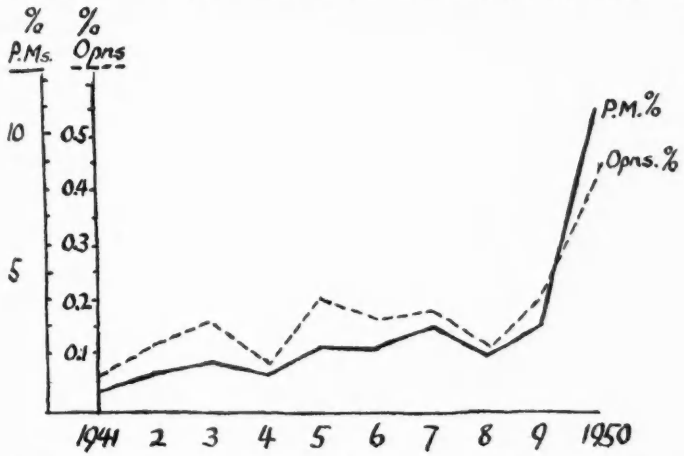

Fig. 3. Deaths from pulmonary embolus as a percentage of all post-mortem examinations, and as a percentage of all operations done.

centage of autopsies and of operations—the same sudden increase is observed as in Fig. 1 (annual deaths). It can be seen that in 1950 death occurred from pulmonary embolus in about ten per cent of autopsies and in about 0·44 per cent of patients operated upon. The highest figures previously recorded were 2·7 per cent and 0·23 per cent respectively.

Fatal pulmonary embolus as a percentage of total admissions was 0·15 in 1947, 0·14 in 1949 and 0·5 in 1950—*i.e.* in that year one patient in every 200 admitted died of a pulmonary embolus.

Effect of increasing age of patients

There has been an increase in age of patients at the Bristol Royal Infirmary in recent years (Fig. 4). In 1950 there were 156 fewer patients under 50, and 746

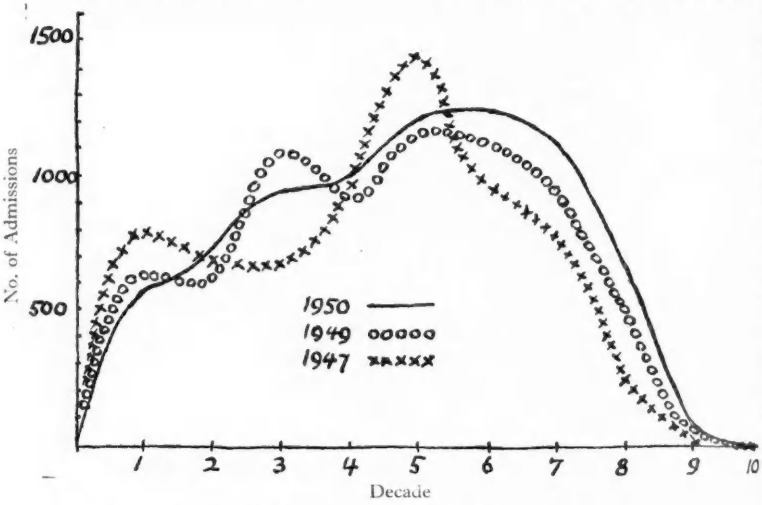

Fig. 4. Age distribution of patients admitted in 1947, 1949 and 1950

more over 50 than in 1947 (Table 2). Increasing longevity and greater enterprise in operating on the aged are probably factors in this age shift; but another less obvious cause may be the gradually increasing length of surgical waiting lists. In 1950 there were 1,422 more people waiting for operation than in the corresponding period in 1947. Where there is competition for beds the elderly patients with cancer and serious surgical conditions must displace the younger patients with herniae, varicose veins and conditions which can wait for treatment, and they thus become an undue proportion of the total of admissions. It is in patients over 50 that three-quarters of fatal pulmonary emboli occur.

Nevertheless this shift in age is not the cause of the 1950 increase because the percentage incidence in those over 50 years has doubled while in those under 50 it has increased fourfold compared with 1949 and tenfold compared with 1947 (Table 3).

Thus there has been a real increase in fatal pulmonary embolus in all age groups, proportionately greater in the young than in the old.

TABLE 2

Age group of in-patients, 1947 and 1950

Age Group	Number of in-patients				Increase or Decrease 1947–1950
	1947		1950		
	Admitted	Percentage of total	Admitted	Percentage of total	
Under 50 years	4,540	68·5	4,384	60·7	Decrease 156 (7·8%)
Over 50 years	2,090	31·5	2,836	39·3	Increase 746 (7·8%)
Total ..	6,630		7,220		Increase 590 (8·9%)

TABLE 3

Incidence of fatal embolus in age groups

Year	*No. of fatal emboli*		*No. of patients at risk*		*Percentage of incidence*	
	Under 50	Over 50	Under 50	Over 50	Under 50	Over 50
1947	1	9	4540	2090	0·02	0·45
1949	2	8	4305	2492	0·05	0·32
1950 ..	10	25	4384	2836	0·23	0·88

EFFECT OF NEW DRUGS AND ANAESTHETIC AGENTS

Drugs. The drug schedules of the 1950 patients were searched to see whether any drug was used uncommonly frequently. Out of 30 patients, 19 received penicillin, 15 soneryl, 9 sulphonamides, 8 pethidene, 7 phenobarbitone, 5 streptomycin. Only penicillin and soneryl were used in a significant proportion. The latter drug has been used for many years and can surely be exonerated without further examination.

The case against penicillin has to be considered. The annual issues of penicillin from the dispensary to the hospital wards have been as follows (mega units):

1947	*1948*	*1949*	*1950*
8,484	11,000	no record	17,184

It is unfortunate that the figures for 1949 are not available, but it is fairly certain that the increase in the use of penicillin has been gradual and that there

has been no sudden increase in parallel with the sudden trebling of the incidence of embolus.

Nevetheless there is some evidence to suggest that penicillin increases blood coagulability (Moldavsky *et al.*, 1945) and it may be that the increasing use of penicillin has added something to the general tendency.

Anaesthetic agents. The state of complete muscular flaccidity induced by curarine must cause venous stasis in the calves during operations, and might predispose to thrombosis. However, like penicillin, the use of curarine has increased steadily, as the following figures for the issue of ampoules of curarine show.

1947	*1948*	*1949*	*1950*
750	900	1,300	1,500

There therefore seems to be no reason to incriminate this drug.

INCIDENCE OF FATAL EMBOLUS AT OTHER HOSPITALS

Inquiries have been made from other teaching hospitals about their experience of pulmonary embolus in 1950. Table 4 was compiled from their replies. The

TABLE 4

Comparison of incidence of pulmonary embolus at various teaching hospitals in 1950

Hospital	Admissions	Autopsies	Emboli	Percentage of admissions
B.R.I. ..	7,220	341	35	0·5
A	18,073	801	14	0·08
B	9,597	259	4	0·04
C	8,789	197	24	0·27
D	4,934	222	11	0·2

figures are not strictly comparable because the type of case dealt with at each hospital differs. Nevertheless, none of these hospitals had noticed a sudden increase in 1950, and nowhere was the incidence more than about half as high as in Bristol.

This suggests that the cause is local to Bristol.

SUMMARY

1. At the Bristol Royal Infirmary in 1950 there was a remarkable increase in the number of deaths from pulmonary embolus. This was over three times that for any previous year, and was about 0·5 per cent of all admissions. This increase affected all age groups, but was proportionately greater in the young than in the old.

No explanation for this sudden increase was found but the cause is probably local to Bristol and requires further investigation.

2. From 1940 to 1949 there has also been a steady gradual increase in the number of fatal pulmonary emboli. Possible causes for this include:

(*a*) The increasing proportion of hospital patients who are elderly and have serious conditions.

(*b*) The recent tendency towards early ambulation after operations, which probably does not diminish the incidence of phlebo-thrombosis, and may dislodge clots which would otherwise become adherent.

(*c*) The increasing use of penicillin and other antibiotics which may tend to increase blood coagulability.

My thanks are due to the members of the staff of the Bristol Royal Infirmary for allowing me to examine the records of their cases, and to Prof. R. Milnes Walker, Dr. J. E. Cates, Dr. C. S. Shaw and Mr. A. Levy for valuable help.

Addendum

1951 figures are now available and show that the increase has been maintained; the number of deaths from pulmonary embolus was 31, compared with 10 in 1949, and 35 in 1950.

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GARGOYLISM

BY

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Lindsay (1950) reported that 156 cases of this disease had been described. It is therefore not common, but among mentally defective children there are probably many more who belong to this group. Although no patient will benefit from this diagnosis at the present time, its more frequent recognition may bring a better understanding of the disease. It is with this hope that a further case is described.

John B. was born on the 2nd March, 1948, being delivered by the breech. His parents thought well of him, but within two months he was found to have double inguinal herniae. He also had trouble with feeding, which yielded to the bottle.

At 7 months, it was noticed that his back was weak. X-ray pictures showed kyphosis, scoliosis and congenital dislocation of the left hip but no other evidence of abnormal development or bone disease. The inguinal herniae were repaired shortly after his first birthday, and he was circumcised at the same time. At this time squareness of the head and prominence of the frontal bones were noted, together with slight enlargement of the liver.

At 2½ years he was clearly mentally defective, and he was regarded as a mongol. He was unable to say more than a few words but he responded to simple requests; he could feed himself and was clean in his habits. He walked steadily in a waddling manner. He was a large but stocky child and steadily increasing in weight. In addition to kypho-scoliosis he now had bilateral dislocation of the hips and an umbilical hernia, for which he was treated surgically.

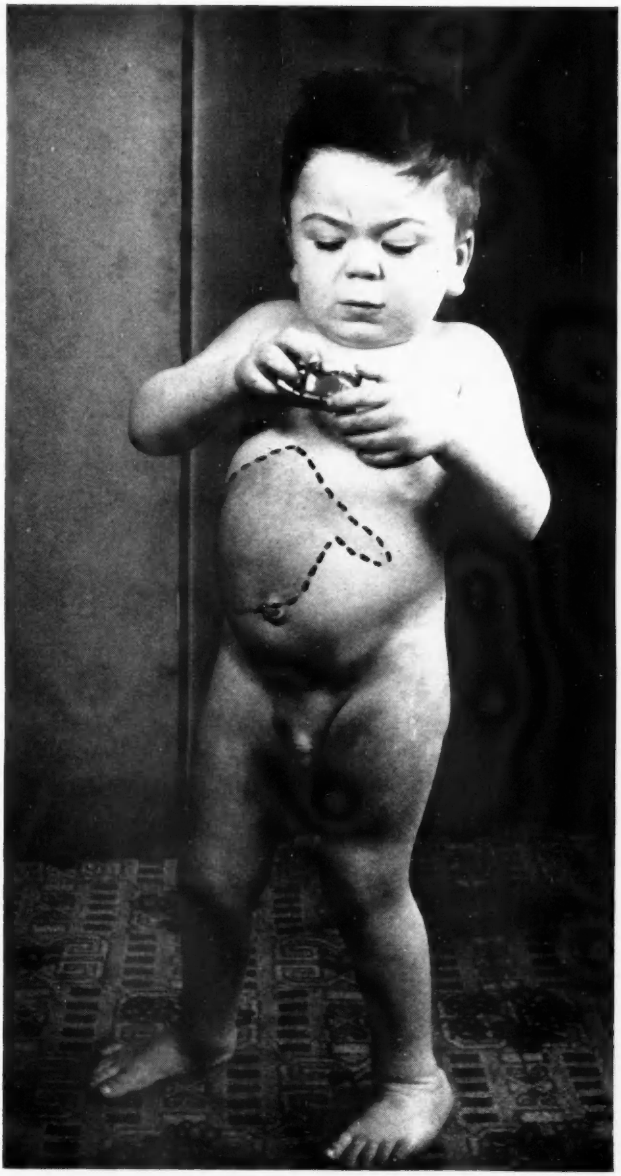
At 3½ years his abdomen began to increase in size and his stools became rather loose. His appearance was now remarkable. He had a large square uncouth head, with heavy features. His eyes were rather wide apart, and the bridge of his nose depressed, but his eyes were lively and his expression amiable. His head was sunk squarely between wide high shoulders (Plate II). His trunk was squat and solid, and supported by a firm stance with his feet wide apart. Other peculiarities were now observed. His corneae were hazy, his skin thick and rather dry, his hands and feet were large, and the bones of his forearms and legs thickened. Dorsal kyphosis was present, and his thoracic cage seemed too large for him. His liver reached three inches below his ribs and was smooth. Blood Wassermann reaction was negative.

On X-ray examination abnormalities were seen in almost every bone in his body (Plate III). In his rather large skull the most characteristic change was an elongated, boat-shaped, pituitary fossa, without any sign of erosion of the clinoid processes. The mandible was massive. There was dorsal kypho-scoliosis, while the second lumbar vertebra and, to less extent, the first and third showed the anterior " beaking " of the vertebral body, which is characteristic of the disease. The upper and lower surfaces of the vertebral bodies were convex, so that they presented a somewhat circular outline. The ribs were very wide. The changes in both hip joints were similar to those of congenital dislocation, with defective development of the heads of the femora. The bones of the limbs, particularly of the forearms, fingers and legs were widened with some loss of the normal bony texture.

DISCUSSION

Although this condition was recognized in 1900, the first adequate description was by Hunter (1917), who was then a major in the Canadian Army

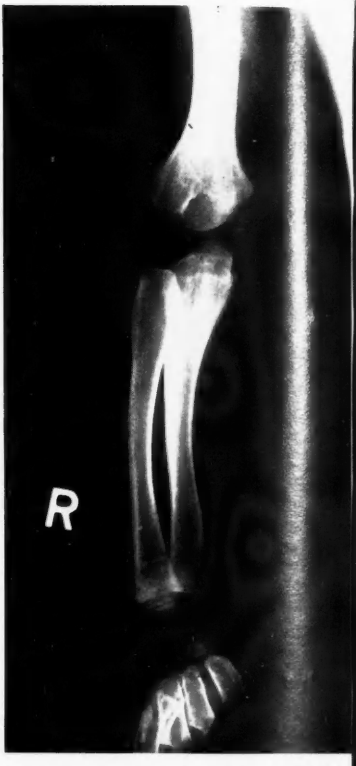
PLATE II



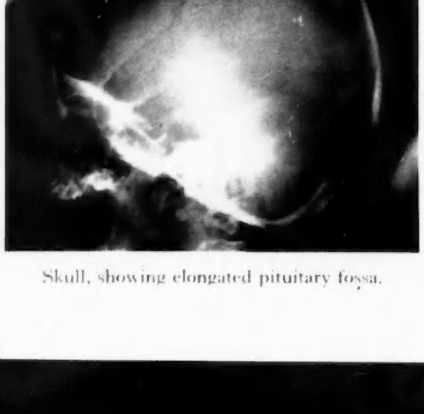
Gargoylism, showing the heavy square head implanted between the wide shoulders. Also the stance, the big thorax, and the enlarged belly with huge liver. The mark to the left of the liver indicates the left costal margin.

PLATE III

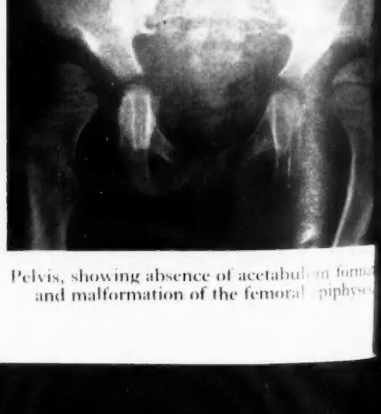
X-ray of spine, showing the convex upper and lower surfaces of the vertebrae and the anterior "beaking" of the upper lumbar vertebral bodies, especially the second.



Right arm and metacarpus, showing thick
of long bones and loss of bony structure



Skull, showing elongated pituitary fossa.



Pelvis, showing absence of acetabul
and malformation of the femoral epiphyse

Medical Corps. Hurler published two cases in 1919, and it became known as Hurler's Syndrome, but in 1935 she suggested the name dysostosis multiplex. Ellis (1936) christened it gargoylism, by which term it is most commonly known; but, in 1937, Washington suggested lipochondrodystrophy.

It is slightly more common in boys than in girls, and there is a familial tendency which is sufficiently strong to establish a genetic factor in the causation (Jervis, 1950). Although it may be present at birth it is seldom recognized under one year of age. Most patients die before their tenth year; a few survive to fifteen, and occasionally to twenty years.

This case illustrates all the gross changes which have been described in the disease except for splenic enlargement. The osseous changes are more fully described by Fairbank (1949). It remains therefore to discuss the curious cellular changes underlying the gross pathology. From the scanty reports on histology it seems that every tissue in the body is infiltrated by an intracellular and extracellular deposit. This affects mainly the cardio-vascular, skeletal, reticulo-endothelial, nervous, and endocrine systems. The heart and blood vessels are particularly affected, the ventricles being enlarged and the vessels thickened; these changes are the commonest cause of death (Lindsay, 1950). Opinions differ as to the nature of the deposit. Lindsay (1948, 1950) considers that the substance is glycogen, probably in combination with protein, but Green (1948) and Jervis (1950) regard it as a lipoid substance. The evidence in favour of glycogen is based mainly on biopsy, and that in favour of lipoid on post-mortem material, in which glycolysis may well have occurred. Despite these doubts it is generally agreed that gargoylism should be placed in the group of storage diseases. In these various diseases, the macromolecular substance in the tissues, although varied in constitution and location, may produce similar physiological changes.

Diagnosis is not difficult if the condition is remembered. The only likely alternative is congenital syphilis, and this should be excluded. The onset of acromegaly may be suspected. In the type of dwarfism known as the Morquio-Brailsford syndrome there is a somewhat similar kyphosis, but radiological appearances of the spine are distinctive and true " beaking " of the vertebrae is not seen; moreover, mental deficiency and corneal opacity are absent.

Cretinism, or later mongolism, may be suspected, but superficial examination is sufficient to exclude these. Many *formes frustes* are described, usually in siblings of well-established cases, and in these the diagnosis may present great difficulty and only be confirmed by microscopy (Jervis, 1950).

Corneal opacity and hepato-splenomegaly are not essential for diagnosis, but mental defect is almost invariably present, together with the peculiar and characteristic facies, dwarfism, and skeletal deformity, particularly of the spine. The facies is of paramount importance in arousing suspicion of the disease, and in all such cases spinal X-ray pictures should be examined. There is remarkable similarity in the published photographs of these patients, and their appearance fully justifies the retention of the name " gargoylism ".

This possible diagnosis should be borne in mind in examining all mentally-defective children with bony deformities, or even with herniae. When the effect of the disease upon the cardio-vascular system is appreciated there may be less readiness to regard them as cases for routine surgery. In all doubtful cases in

which surgery is undertaken, biopsy should be carried out and for this purpose circumcision may suffice.

I am very grateful to Dr. T. L. Chester-Williams for the photographs, and to Dr. A. Craig Mooney for the use of the X-ray films.

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THE RELATION BETWEEN HYPERTENSION AND THE KIDNEY

A Review

BY

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It is easily shown that a decrease in the calibre of blood-vessels is a far more important immediate cause of hypertension than are changes in cardiac output or in blood volume or viscosity. In younger hypertensives, at least, the fall in blood-pressure seen after drugs or sympathectomy, and results of the cold-pressor test, show that the narrowing is primarily due to vascular spasm. Any organic narrowing is very likely to be a secondary effect, and medial thickening of arteries is to be regarded as a compensatory work hypertrophy (Hueper, 1944).

THE KIDNEY AS THE INITIATOR OF VASOSPASM

Although Bright had noted the " full hard pulse " of his patients, he had no means of measuring their blood-pressure. The first unequivocal demonstration of a renal extract with a pressor action was given in 1898 by Tigerstedt and von Bergmann, the active substance being named *renin*.

Little more was learnt until 1934, when Goldblatt's experiments stimulated widespread investigation. These experiments are now so well known that a detailed description is unnecessary. It was found that removal of one kidney in a dog, with interference of the blood supply to the other, was usually followed by hypertension within ten minutes to forty-eight hours. Denervation of the kidney did not affect the outcome, which was therefore not due to a nervous factor. Subsequent work, reviewed by Newton and Calma (1949), led to the generally accepted view that the ischaemic kidney formed an enzyme, renin, which reacted with one of the plasma globulins to produce a pressor substance, hypertensin, and this stimulated a generalized arteriolar constriction. It has, however, never been conclusively proved that experimental hypertension is in fact due to renin, or that this substance is more than an accidental finding.

Grollman (1949) removed both kidneys from dogs, and maintained life and good health for thirty to seventy days with an artificial kidney. The dogs developed hypertension, and as no renal tissue was present, Grollman concluded that the pressor substance was formed elsewhere. In other dogs, the kidneys were allowed to remain, with an intact blood supply, but were rendered functionless by bilateral ligation of the ureters. Hypertension did not develop, and Grollman took this to mean that kidneys normally form an antagonist to an extra-renal pressor material. But this work does not disprove the renin theory; pressor substances may be formed elsewhere as well as in the kidney, and the kidney may form also an antipressor compound. There is, in fact, fairly good

evidence (Helmer *et al.*, 1942) that the kidney does form hypertensinase, which destroys hypertensin.

Renin, though detectable in the renal vein after inducing experimental renal ischaemia, is rarely found in the peripheral circulation, except during the first few days of an experiment. However, renin was found in the heart and liver of shocked dogs, and Braun-Menendez (1951) suggested that it may be absorbed by the blood-vessel walls, and form hypertensin *in situ*, thus accounting for its absence from the circulation.

From further studies, it was argued that renin, being an enzyme and therefore a protein, should act as an antigen, and stimulate antibody production. Wakerlin (1952) has obtained an antibody to hog renin, which prevents the pressor effects of both hog and dog renin, but does not neutralize human renin, or lower human blood-pressure. So once again, the experiments neither prove nor disprove the significance of renin.

Pickering (1945) found that in rabbits removal of the one remaining kidney a week after ischaemia had been induced in it, was followed by the disappearance of hypertension, but if removal was postponed for two months, the blood-pressure was not affected. From these experiments, and from others demonstrating the absence of renin after the first few days of hypertension, he concluded that two factors were concerned in producing experimental hypertension. One factor, perhaps renin, initiated the condition; the other, at present unknown, factor maintained it. In further support of this view, hypertension persisted in the rat after removal of the ischaemic kidney. In women with toxaemia of pregnancy, it was noted that blood-pressure returned to normal more slowly, or not at all, when toxaemia was of long duration.

THE HEPATO-RENAL OR VDM-VEM MECHANISM

During the past two years, Shorr and his group (Shorr, 1951a) have discovered another humoral mechanism, independent of renin, which can account for both the onset and the maintenance of hypertension. It is well known that only a proportion of the total number of capillaries and metarterioles in any one area are open. Their number, and degree of dilatation, appear to be influenced by many chemical substances, some produced locally, and others at special sites. Among the latter are two important ones, a vasodilator material (VDM) formed in the liver, and a vasoconstrictor substance (vasoexcitor material or VEM) produced only by the kidney. If VDM is present in excess, more vessels dilate, and blood-pressure falls; with excess VEM, the reverse occurs. Either substance can be estimated by a bio-assay method.

The oxidized form of VDM, which is inactive so far as blood-vessels are concerned, is, oddly enough, the iron-carrying protein, ferritin. Most of the VDM produced by the liver is normally in the form of ferritin; only a small amount is secreted as the reduced active compound. Less is known about VEM; although it has protein properties, it appears to be distinct from renin. Ischaemia, such as follows the Goldblatt experiment, stimulates VEM secretion, so that the blood pressure rises. More VDM is then formed, and this is in the unoxidized active form. The balance between the amounts of VEM and VDM is such that the blood-pressure is stabilized at a higher level than before. Shorr (1951b) has reviewed many similarities between experimental renal hypertension in animals

and the human disease. With tetrazolium, specific histo-chemical changes have been demonstrated in the proximal renal tubules of hypertensives for the first time, and these may be related to VEM secretion.

THE INTRA-RENAL CIRCULATION

Trueta and his co-workers (1947) have suggested a possible mechanism for production of renal ischaemia in man. By injecting rabbit kidneys it was found that blood had two possible intrarenal routes, either (a) through glomeruli in the outer two-thirds of the cortex (cortical glomeruli), then to the capillaries around the whole length of the adjacent tubules, and finally to the veins, or (b) through the glomeruli in the inner third of the cortex (juxtamedullary glomeruli), then along vessels running with the U-shaped loops of Henle, and so to the veins. Similar results were found in many other species, including man.

Trueta makes a further claim, which will not be accepted, that either circulation may shut down independently of the other. Closing the cortical circulation would by-pass eighty-five per cent. of nephrons, an ample stimulus for renin or VEM release. Such an ischaemia is detectable by a pallor of the renal cortex, and can be obtained in the rabbit by such stimuli as a considerable haemorrhage or faradization of a cut sciatic nerve. But these are severe stimuli, not comparable with those presumed to initiate human hypertension, and the rabbit has a notoriously labile sympathetic system. Its kidneys differ from those of most mammals; Dicker and Heller (1945), for instance, found the rabbit glomeruli open and close, as do those of amphibia, whereas Smith (1943) showed that all glomeruli remain continuously open in the human kidney. Smith (1951) has very fully reviewed a mass of evidence, accumulated by many workers, and shown that the concept of a renal shunt is inconsistent with the findings in man during adult life and in senescence, after adrenaline or histamine, in syncope, shock, anuria and congestive heart failure, during diuresis, during abdominal compression, in pyrexial hyperaemia and finally in hypertension. As this evidence is readily available in Smith's review, there is no need to elaborate it here.

The direct evidence for a shunt in man comes from reports of patients with renal cortical necrosis (e.g. Jeffcoate, 1950), but even this evidence is disputed by some (Selkurt, 1951) who distinguish between cortical ischaemia and a true diversion of the cortical blood through the juxta-medullary circulation. Altogether it seems that the shunt is a mechanism found in rabbits but not in man.

Authors have at times claimed the existence of direct intrarenal arterio-venous anastomoses, thus providing another basis for renal ischaemia. In one recent paper (Trabucco and Marquez, 1952), it was even claimed that afferent and efferent glomerular vessels are continuous, and glomeruli are *cul-de-sacs* at the ends of side-branches. Other workers have injected glass spheres up to 0·4 mm. diameter into the renal artery, and recovered them from the renal vein; being too large to pass through the glomeruli, these spheres have presumably travelled by arterio-venous connections. But the most carefully made kidney injections, those of Trueta, did not show any such connections in normal kidneys, and those which are present appear to result from glomerular degeneration. Smith points out that the recovery of the glass spheres can be explained by the presence

of a few anomalous vessels, such as may be expected among the million nephrons of each kidney.

RENAL BLOOD-FLOW IN HUMAN BENIGN HYPERTENSION

Smithwick (1951) took biopsies from kidneys during sympathectomies performed for hypertension. In five hundred patients with long-standing hypertension, intrarenal vascular changes were absent in forty-five per cent.; in earlier cases, kidneys were more frequently normal. This suggests that if renal ischaemia is present in the human disease, it is, in fact, due to intrarenal vascular spasm, and not to renal arteriolosclerosis. Smirk (1949) in an important review on the pathogenesis of essential hypertension, concluded that when hypertension " is present in comparatively young people, the elevation of blood-pressure is often, probably usually, manifest before the characteristic pathological changes make their appearance in the kidney. . . ."

Smith *et al.* (Goldring, 1944) found by the usual clearance methods, that renal blood flow was essentially normal in the earlier cases of hypertension, although it was reduced when the disease was more advanced. They concluded that hypertension was the precursor of ischaemia, rather than *vice versa*. Chasis and Redish (1941) measured the blood flow of the two kidneys separately in each of several hypertensive patients, and found the two sides had an approximately equal flow. This finding is more likely if the hypertension precedes the ischaemia, rather than the reverse.

It may be concluded that evidence for renal ischaemia preceding benign hypertension in the human is scanty. Humoral theories, so far as the disease and not the experimental condition is concerned, receive little support from renal blood flow measurements.

IS NEPHRECTOMY EVER INDICATED IN HYPERTENSION?

To summarize, it would seem on theoretical grounds that nephrectomy would have little importance in the treatment of hypertension, and this view is borne out by clinical experience. Rath and Russek (1945) found urological disease present in 10·7 per cent. of 6,044 hypertensive patients; even so, it does not necessarily follow that the former gives rise to the latter. The figure of ten per cent., however, seems an average one, and suggests that urological disease is not an important cause of hypertension. Nephrectomy, of course, can be of use only when unilateral renal disease gives rise to the hypertension, and this must occur quite rarely. Goldring and Chasis (1944) found hypertension no more commonly in those with such renal disease than in an unselected group of patients; and most other workers report similarly, although there are exceptions (Braasch, 1940; Baggenstoss, 1941). The acid test of the value of nephrectomy is to find how frequently it has in practice relieved hypertensive patients of their disability. Smith (1948) found 107 partial or complete cures of hypertension in 242 reported instances of unilateral nephrectomy. A few more successful cases have been reported since (e.g. Wayman and Ferris, 1952; Hoffman *et al.*, 1952), but the number is very small in relation to the total number of hypertensives. The urological condition most commonly found in successful cases is a unilateral atrophic pyelonephritis, or a congenitally small or kinked renal artery. Smith concludes such patients form 0·5 per cent. of all hypertensives. Until we have

a reliable means of deciding beforehand which patients belong to this small group, nephrectomy can have no place as a planned treatment for hypertension.

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THE SURGICAL TREATMENT OF BRONCHIECTASIS*

BY

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Bronchiectasis is a permanent and pathological dilatation of a bronchus altering its function. It can only be cured by removal of the diseased areas. Medical treatment is palliative and consists of change of environment to a more congenial climate, and control of respiratory infections by physiotherapy and antibiotics when necessary. Once established the condition tends to get worse with repeated infections, the result of " spill over " of sputum from infected areas of the lung to the healthy areas. Common complications are cerebral abscess and focal nephritis. Nasal sepsis may be a primary cause of the bronchial infection, or a secondary chronic sinusitis may arise later. That nasal secretions reach the chest during sleep can be proved by instilling lipiodol into the nose, when some of it can be shown on X-ray to be in the chest on the following day. Again, excision of a bronchiectatic area quite often clears a chronic nasal sepsis. Before the use of antibiotics few patients with much disease survived over fifty years. The patient with bronchiectasis who needs surgical treatment sometimes fails to get it because of the priority given to tuberculous patients waiting for operation.

Two forms occur, the wet and the dry. In the wet form the patient has mucoid or purulent sputum; in the mild case there is sputum in the morning only, in the moderate case sputum in the morning all the year round, generally with a history of repeated bronchitis or pneumonia. In the severe case there is copious sputum with dyspnoea and persistent cough. The mild and moderate types are suitable for treatment, but the severe cases are usually not amenable to surgical treatment. In the wet form of the disease, the lower lobes are usually involved. There is a middle lobe type, the Brock syndrome, the basic cause being epituberculosis. In the dry form there is little cough and no sputum, but there are bouts of haemoptysis. The upper lobes are affected. The sputum is scanty, because there is good drainage in the upright posture. Surgical treatment is not advisable for these cases unless haemoptyses are frequent. When operation is done the bronchial arteries are found to be dilated as well as the bronchi. Large doses of hypnotics should not be given for haemoptyses in these cases, owing to the risk of atelectasis from blood clot.

The physical signs are clubbing of the fingers and foetor in advanced disease, but more useful is the early " laughing sign " (the patient usually coughs on laughing). The exercise sign is very suggestive of bronchiectasis, and the patient who " likes a cigarette first thing in the morning to get rid of the sputum"

* Report of a paper given before the Devon and Exeter Medico-Chirurgical Society on 3rd April, 1952.

is also probably a sufferer. Rales will be detected over the diseased area on clinical examination. The diagnosis can usually be made on straight X-ray films, particularly a lateral view. In children, bronchograms are often essential. The X-ray may show bunching of the root shadows and collapsed segments. A bronchogram will show either a saccular appearance or finger-like dilatation of the affected bronchi. Sputum examination for tubercle bacilli and fungi should be undertaken. Bronchoscopy is performed to make sure that the bronchi are patent. Before the bronchoscopy the chest must be cleared of sputum or it may be difficult to make a satisfactory examination.

MEDICAL TREATMENT

Cases over forty to forty-five years are usually too old for operation because of associated suppurative bronchitis, and toxic nephritis is a contra-indication to operation. The lower age limit is determined by the age the particular patient can co-operate with the physiotherapist, usually about six to eight years. Asthma and emphysema are contra-indications to surgery as a spasm of asthma after operation may lead to atelectasis.

SURGICAL TREATMENT

In 1911, ligature of the pulmonary artery, thoracoplasty, artificial pneumothorax and phrenicectomy were all tried. Later mass ligation of the hilum was done, usually with bad results. In 1928, tourniquet lobectomy was developed, but bronchial fistula resulted in 30 per cent. of the cases, and the long bronchial stump remaining acted as a reservoir of infection. Churchill and Belsey (1939) introduced segmental lobectomy, making a great advance. The upper lobe of the lung is composed of three segments, the middle lobe two and the lower lobe four or five, and it is possible to peel off a diseased segment from a healthy lung in the same way that a gall bladder is peeled off from the under surface of the liver in cholecystectomy. Thus it is possible, by removing diseased segments only, to conserve much of the healthy lung which would otherwise be sacrificed, and bilateral operations can be performed with greater safety.

Pre-operative treatment takes three to six weeks for the cleaning up of bronchial secretion—to prevent atelectasis. Intensive breathing exercises (diaphragmatic, costal and shoulder girdle exercises) are instituted. By this means the vital capacity can often be increased by as much as 500 cc. Postural drainage is done three to four times a day, and the physiotherapist aims to empty each lobe in turn, and charts the quantity obtained each day.

Nasal sepsis is attended to and intrabronchial installation of penicillin into diseased lobes is performed daily. Expectorant mixtures are of little value and smoking is prohibited. Anti-spasmodics are helpful and anaemia is corrected. When the sputum is minimal bronchoscopy is done to look for any obstruction; this is best carried out under local anaesthesia so that the patient's co-operation can be obtained and voluntary coughing is not abolished. Bronchography is also best done when the sputum is minimal and the lipiodol must be emptied out of the lung afterwards to avoid post-operative atelectasis. A recent innovation for this is *Ioduron B*, a water-soluble dye, which is rapidly absorbed and excreted from the lungs.

REFERENCE

Churchill, E. D., and Belsey, R. (1939). *Ann. Surg.* **109**, 481.

UNILATERAL PAPILLARY NECROSIS OF KIDNEY IN A DIABETIC*

A rare complication of enlargement of the prostate gland

Dr. B. E. McConnell—This old man was an N.H.S. patient of mine. He was the proprietor of four or five taxi-cabs, and still drove himself at the age of 75. He led an extremely active life up till admission to hospital.

I saw him first, eighteen months ago when he had epididymo-orchitis, for which I gave sulphamezathine. He refused to go to hospital because of driving his taxi. I did not test his urine because I saw him at home and not at my consulting rooms. In July 1951 he had dysuria and a recurrence of epididymo-orchitis; he agreed to go to the Genito-urinary out-patients, where glycosuria was discovered and he was advised by Mr. Ashton Miller to enter hospital for trans-urethral resection of his enlarged prostate.

His diabetes was controlled quite easily by diet. He was under investigation as an out-patient until he was admitted as an emergency on October 9th, 1951, because he suddenly developed severe abdominal pain. He was only very slightly febrile. He was definitely tender in the right iliac fossa. I felt that the diagnosis lay between appendicitis and renal infection.

Mr. A. Wilfrid Adams—I saw this man after his admission in October. There was right-sided tenderness and " belly-ache ". I suspected kidney trouble. There was slight haematuria and the kidney region was tender, but there was no clear indication of the aetiology. Much sugar was found in his urine and he was given insulin. An intravenous pyelogram showed no function of the right kidney which was surprising because a previous pyelogram performed when he was seen in the out-patient department in July 1951 had shown both kidneys working normally. The blood pressure was 150/90 and the blood sugar 600 mgm. On cystoscopy an oedematous right ureteric meatus was seen. No urine came from it. A swelling in the intramural portion was opened and a lot of debris, followed by clear urine, escaped This urine contained pus cells and *B. coli*. The next day he was better but had a rigor after a period of right-sided back-ache. On October 24th, the blood urea was 32 mgm%. He was given penicillin and streptomycin. The tenderness in the loin was now nearly gone. On November 6th I explored the right kidney surgically because of clinical evidence of tension. Examination of the kidney was difficult because of dense perinephric fibrosis and as the pelvis was only slightly distended I drained the kidney by a stab wound through the kidney substance into the pelvis. I did this nephrostomy in the hope that free drainage would allow the kidney to function again.

He became uraemic (blood urea up to 200 mgm%) and deteriorated. I was rather mystified as to what was happening. Pain in the right lower abdomen persisted and the house surgeon, Mr Zabron, felt a hard swelling in the iliac fossa which, he declared, was pulsating. I was not very much impressed by it. On November 15th the patient died.

Dr. J. E. Cates—I have very little to add from the medical point of view. There were two sides to his case. Firstly he was a diabetic who was sick, and diabetics who are sick or have operations we like to control on insulin four times a day with fixed amounts of carbohydrates in their meals. His diabetes was controlled in this way and gave no anxiety.

Secondly, when a diabetic gets uraemia there are two things to think of; one is what is now called Kimmelstiel-Wilson kidney, a condition associated with high blood pressure, protein in the urine and peripheral vascular disease. The second is much rarer, but we can talk about it after Professor Hewer tells us his findings at post-mortem.

Professor T. F. Hewer reported the autopsy—I found a fresh operation wound in the right iliac fossa, from which blood-stained fluid escaped. There was oedema of the lungs, slight enlargement of the heart and vascular evidence of hypertension. The chief interest was in the kidneys.

* A case report at a Clinico-Pathological Conference held on 26th February, 1952, in the Department of Pathology, University of Bristol.

PLATE IV

Kidneys two-thirds natural size. The three arrows on the right kidney show areas of papillary necrosis. The line of separation of the upper one is seen below the arrow.

The left kidney looked healthy, except for some fine scarring of the cortex and microscopic hypertensive vascular changes. It was free from infection. There was no glomerular sclerosis of the Kimmelstiel-Wilson type.

The right kidney I cut just in front of the surgical incision (*see* Plate IV). The drainage tube lay in the pelvis which was acutely inflamed. There was evident pyelonephritis, with abscesses on the surface and scarring. The remarkable thing was necrosis of the tips of the papillae. These were well demarcated and absolutely necrotic: they are indicated by arrows in the photograph and can be seen to be undergoing separation, as sloughs, from the adjacent medulla.

The right ureter was dilated, because where it ran across the common iliac artery it was involved in some fibrous tissue around an atheromatous aneurysm of this vessel. There was extensive atheroma of the abdominal aorta with the usual calcification, and no suggestion of syphilitic aortitis. Below the point where the ureter was obstructed there was no dilatation and the ureteric orifice was patent. The bladder wall was hypertrophied and there was an acute purulent cystitis. The prostate was enlarged and there was an old fibrous epididymo-orchitis on the left side only. The unilateral ureteric obstruction undoubtedly accounted for the unilateral pyelonephritis.

Histologically these pale necrotic papillae looked like infarcts, with a perfectly clear line of demarcation from the viable medulla in which there were some lymphocytes and plasma cells but few polymorphonuclears. Apart from this the right kidney showed only an acute pyelonephritis and hypertensive arteriolar changes. There were no evident vascular lesions to explain the papillary necrosis.

Papillitis renis necroticans, as this condition is called, was well reviewed by Edmondson *et al.* (1947) who studied 32,000 routine autopsies, of which 859 were diabetic. The incidence of acute pyelonephritis in the non-diabetics was 3·28 per cent and in the diabetics 12·45 per cent. The incidence of this curious papillary necrosis in the non-diabetics with pyelonephritis was 2 per cent, and in all but one of these there was chronic urinary obstruction. In the diabetics with pyelonephritis papillary necrosis occurred in 27 per cent so there is a significantly greater incidence in diabetics. It is probable that this is due to the associated renal vascular lesions in diabetics.

There is no very satisfactory explanation of the mechanism of production of this curiously localized necrosis: it does not conform with any arterial distribution and the very slight local inflammatory reaction cannot explain it. I wonder whether it may be venous in origin and in some way related to the phenomenon of pyelo-venous back-flow that is sometimes seen in ascending pyelography. I do not mean that this investigation induces it but that infection of the kidney, with increased pelvic pressure due to ureteric obstruction may interfere with venous drainage around the papillae and produce venous infarction. Because of their vascular disease and susceptibility to infection diabetics are particularly likely to suffer this accident.

In the present case some of the necrotic papillary tissue separated and was passed down the ureter, causing blockage at the lower end: that is my interpretation of the cystoscopy finding.

Death was due finally to a combination of uraemia, infection and pulmonary oedema. I might add that papillary necrosis is the second condition that Dr. Cates had in mind!

Dr. J. E. Cates—I am wondering why the atheromatous aneurysm should have fibrous tissue round it.

Professor T. F. Hewer—I think it had been leaking into the tissues round about. There was a discoloured mass with a lot of thrombus. I have seen fibrosis around leaking atheromatous aneurysms.

REFERENCE

Edmondson (1947). *Arch. Int. Med.* **79**, 148.

VISIT OF DR. ALFRED BLALOCK

On May 6th, Bristol was honoured by a visit from Dr. Alfred Blalock, Professor of Surgery at the Johns Hopkins Hospital, Baltimore. Accompanying him was Dr. Glen Morrow, one of the Resident Surgeons of the hospital. They were met at Southampton by Professor Milnes Walker and Mr. Eric Nanson and were driven to Bristol in time for Dr. Blalock to deliver a lecture at mid-day in the Royal Fort. Dr. Blalock was introduced by the Vice-Chancellor to a crowded gathering of doctors, students and nurses.

Dr. Blalock is the third notable occupant of the Chair of Surgery at Johns Hopkins Hospital. First was William Stewart Halstead, the centenary of whose birth, celebrated by the Royal Society of Medicine on May 20th, was the reason for Dr. Blalock's visit to England. The second was Dean Lewis, and he was succeeded by Dr. Blalock who came to Hopkins from Vanderbilt University, Tennessee, in 1941. The world probably knows of Dr. Blalock as the originator of the " Blue Baby operation ", but he himself values more highly the work he did in the 'thirties on the fundamental pathology and treatment of shock, which is now classical. He stressed the part played by loss of blood volume in shock production and the vital importance of its adequate replacement. He was one of the first men to perform thymectomy for myasthenia gravis. In 1944 he performed the first subclavian to pulmonary artery anastomosis for Tetralogy of Fallot, now known as the Blalock-Taussig operation. The brilliance of this operation lies not so much in the technical details, but in the fact that he and Taussig appreciated that in Tetralogy of Fallot there was a diminished pulmonary blood flow which caused the patient's disability and was the point of attack for his relief. Since 1944, some seven hundred such operations have been performed at the Johns Hopkins Hospital. By this work Dr. Blalock has widened the field of cardiac surgery and in particular that of congenital heart disease, thereby enhancing the Halstead tradition and making Baltimore the leading cardiac surgical centre of the world.

As a teacher both of undergraduates and postgraduates he is pre-eminent, and the famous Friday noon clinics which he conducts, as in the days of Halstead, are attended with pleasure and profit by visitors to Baltimore. As a man Dr. Blalock has great charm of personality. A characteristic is his modesty in giving credit to his assistants rather than to himself.

After his lecture he had lunch with the senior registrars at the Bristol Royal Infirmary, and he and Dr. Morrow spent the afternoon seeing and discussing the work that was in progress in the Department of Surgery. In the evening he dined with some of the members of the surgical and medical staff.

In his lecture Dr. Blalock discussed the cardio-vascular problems which he and his associates have been treating at the Johns Hopkins Hospital. He stated that the results of sympathectomy for essential hypertension had been moderately successful. In wounds of the heart he advocated pericardial aspiration rather than open operation as the primary measure. He described three cases of

DR. ALFRED BLALOCK

saccular syphilitic aneurysm of the aorta treated by Dr. Henry Bahnson by excision of the aneurysm and repair of the aorta. He illustrated the excellent result to be obtained by lobectomy for congenital pulmonary arterio-venous aneurysm.

He divided surgery of the heart itself into two major divisions; for congenital lesions, and for acquired lesions.

Congenital lesions. He described the four-ligature method of closing a patent ductus arteriosus, and commented on the atypical large ductus associated with pulmonary hypertension and without a continuous machinery murmur. In the Johns Hopkins Hospital some 130 cases of coarctation of the aorta had been operated on and he illustrated one case in which an aplastic segment of aorta 5 cm. long had been resected and replaced by a homograft. The optimum time for an operation on coarctation of the aorta was five to fifteen years of age.

He reviewed the results of 691 cases of cyanotic heart disease, mainly cases of Tetralogy of Fallot, which had been operated on in his cardiac unit. In eighty-two per cent. the results had been good, in two per cent. fair and the mortality was fourteen per cent. He reviewed the type of stenosis in ninety-five cases of Tetralogy of Fallot from post-mortem examination of the heart and found that in sixty-three there was an infundibular stenosis and a valvular stenosis in only ten.

Acquired Heart Disease. He discussed surgery of mitral valvular stenosis, fifty cases having been operated on in his clinic. He gave the indications and contra-indications which fitted in closely with our own criteria in Bristol. There had been five deaths, chiefly due to cerebral embolism, which he regarded as the main hazard of the operation. The results he thought most encouraging.

He touched on the surgery of constrictive pericarditis and stressed the importance of clearing both ventricles, and thought that earlier operation could be undertaken. He mentioned the work of Beck on coronary arterial disease but doubted whether it was a sound surgical procedure.

The lecture was a masterly review of the subject, illustrated with beautiful lantern slides, and couched in such clear terms that those unfamiliar with cardiac surgery could follow it with ease.

Reports of Meetings

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY

A meeting was held at Hawkmoor Chest Hospital, Bovey Tracey, Devon, on April 17th, 1952. After an inspection of the hospital Dr. R. L. MIDGLEY gave a short account of some cases which he was treating with *Nydrazid*, the Squibb's isonicotinic acid hydrazide preparation. Some twenty cases were reviewed, but as the average length of time they had been under treatment was only four weeks, nothing more than a tentative opinion could be expressed. There had been no untoward effects, and the results so far obtained were sufficiently encouraging to warrant further investigation. Mr. J. L. GRIFFITH gave a most interesting demonstration of cases and pathological specimens to illustrate the place of major surgery in the treatment of pulmonary tuberculosis and of non-tuberculous thoracic disease.

SURGICAL CLUB OF SOUTH WEST ENGLAND

The seventh post-war meeting of the *Surgical Club of South West England* was held at the Royal Cornwall Infirmary, Truro, on May 2nd and 3rd, 1952.

On the Friday morning demonstration operations were performed by Mr. T. E. RUTTER (Truro), Mr. S. R. ADLINGTON (Falmouth) and Mr. C. B. O'CARROLL (Falmouth), after which specimens and X-rays were discussed until lunch-time. During the afternoon four papers were read on: *Tantalum gauze implant in the treatment of inguinal hernia*, by Mr. G. F. BURNELL (Truro); *One hundred cases of gall-bladder diseases*, Mr. J. R. WHITE (Penzance); *Acute gastric haemorrhage*, Mr. T. REID (Camborne–Redruth), and *The management of carcinoma of the colon*, Mr. S. R. ADLINGTON (Falmouth).

In the evening a cocktail party was given by the local surgeons at the Goonvrea Hotel and this was followed by the official dinner at Truro.

On Saturday morning more operations were performed by Mr. T. REID and Mr. J. R. WHITE; afterwards papers were read by Mr. T. E. RUTTER on *Carcinoma of the bladder*, and Mr. C. B. O'CARROLL on *Acute intestinal obstruction in the aged patient*, both of which were followed by a lively discussion.

The meeting was notable not only for the excellence of the official programme, but also for the beautiful spring weather and the two lunches kindly arranged by the West Cornwall Hospital Management Committee in the Nurses' Home of the Royal Cornwall Infirmary.

SOUTH WEST ORTHOPAEDIC CLUB

The Spring meeting of the *South West Orthopaedic Club* was held at Musgrove Park Hospital, Taunton, on Saturday, May 24th, 1952. Mr. R. F. Winckworth was Chairman.

Mr. K. PRIDIE showed serial sections of the heads of several femora which had been excised for avascular necrosis following fracture of the neck of the femur. He emphasized the importance of the blood supply of the head of the femur, particularly that of the ligamentum teres and its anastomosis with the branches of the circumflex vessels. He said that when non-union occurred following the out-of-date method of treatment by doing nothing except to encourage active exercises of the hip, the head of the femur never disintegrated, but became revascularized. He felt that weight bearing was responsible for the fragmentation which occurred with avascular necrosis after pinning.

Mr. J. BASTOW said he thought this evidence showed how unwise it was to allow early weight bearing after pinning, and that a reasonable time for union should be allowed.

say six months or more, before permitting the patient to take weight. The X-ray was of little value in the determination of union.

Mr. A. EYRE BROOK showed some arthrograms of cases of congenital dislocation of the hip. The arthrograms had been carried out after the period of immobilization had been terminated. He felt that little could be gained from an arthrogram carried out before the reduction was effected, but there was much to be seen in the post-fixation period. It outlined the limbus clearly and gave assistance in deciding if a shelf operation was necessary. It showed up the interior of the joint and disclosed any obstruction in the acetabulum. Some cases appeared to show recurrent subluxation of the head of the femur on a straight X-ray film, but, in fact, were not doing so when visualized on the arthrogram.

He had carried out an arthrogram on an old case of Perthe's disease of the hip and the interesting fact was that there was congruity of the joint surfaces although they were deformed.

He also showed a case of subluxation of the hip which had occurred following anterior poliomyelitis. Although rotation was said to cause the dislocation, yet in this instance rotation one way or the other did not appear to make any difference in the arthrogram. He had carried out an external rotation osteotomy on this case with no improvement.

Mr. F. C. DURBIN said that he felt that the early arthrograms should always be done in order to distinguish between the true luxation and primary subluxation of Leveuf. This might have an important bearing on progress.

Later on, when the ossification of the head of the femur was eccentric, an appearance of subluxation could be produced which was shown to be false by an arthrogram.

Dr. M. MCALLEY said that during the war he had treated about 100 cases of traumatic myositis ossificans with deep X-rays. Most of the cases occurred in the army; in many of them the condition was found in the region of the elbow joint. They were given 1,500 V. in divided doses at 140 K.V. and at weekly intervals for six weeks. No treatment other than the X-rays was given and the patient was allowed activity of the involved muscles. He said that pain disappeared in three weeks and did not recur: the new bone formation became less in extent, but did not always vanish.

Mr. BLUNDELL JONES discussed eight cases of paralytic spontaneous dislocation of the hip occurring in infancy in both cerebral palsy and poliomyelitis. He considered that valgus deformity of the femoral neck was a primary factor in the production of dislocation and that this could cause luxation even without adduction muscle forces. Valgus of the femoral neck occurred where rapid growth was released from the moulding forces of muscle action and weight bearing, so that the neck continued to grow in line with the shaft. It was therefore most marked in cases paralysed during the first two years of life. Two bilateral cases were presented in which good stability of the hip had been restored by osteotomy at the base of the femoral neck. In one of these, a miniature Capener Neufeld nail plate had been used for fixation. Osteotomy should be carried out as soon as subluxation was recognized in order to prevent secondary growth deformity of the acetabulum; in the later stages, only a shelf stabilization would answer since the acetabulum becomes filled up and shallow.

In discussing a case of paralytic dislocation in Mr. Eyre Brook's series, Mr. BLUNDELL JONES pointed out that stability had been achieved not as the result of an intended rotation osteotomy, but because the operation had also corrected the deformity of the femoral neck. Anteversion had not been a factor in any of his cases.

Mr. KEITH LUCAS said that he had followed up some thirty cases of pathological dislocation of the hips at Liverpool, some of which had been treated initially by Sir Robert Jones. He said that although many operative procedures had been carried out, yet in every case the dislocation had recurred. In no case had an osteotomy followed by internal fixation been done. This might be the solution to a difficult problem.

Mr. F. C. DURBIN showed slides of nine cases of subcapital fractures of the neck of the femur, treated with Austin Moore pins. There was some statistical evidence (Linton 1944) to suggest that the large bulk of the ordinary Smith Petersen nail increased the incidence of avascular necrosis due to further damage to the blood supply of the head. This, it had been suggested (Tucker 1949), might be avoided by the use of multiple small pins.

Of the nine cases, there was evidence of avascular necrosis in six, and it was complete in three cases. All except two cases had a fracture shaft angle less than 30 deg. The results were not sufficiently encouraging to justify a continuation of the method.

There were other difficulties:

1. Multiple pins were more difficult to insert accurately, and the operation time was longer in comparison with a Smith Petersen pin.
2. It was difficult to impact the fracture with the pins in position.
3. The pins sometimes penetrated the joint.
4. In two cases the pins fractured.

He felt that there was a place for the use of multiple pins in the fixation of the slipped upper femoral epiphysis.

When the epiphysis had rotated backwards through one-third of its circumference, it was quite easy to obtain a good hold on it with multiple pins, but very difficult to do so with a single Smith Petersen pin.

It was also quite easy to insert the pins when the epiphysis was hard, and it possibly involved less trauma.

When extracting the pins, they had to be unscrewed. Unless the points had the shoulders rounded off, they were locked by bone and unscrewing them led to fracture of the pins.

Mr. ROBINS showed some colour slides illustrating the treatment of subcutaneous infections of the hand, complicated by skin necrosis. He emphasized the importance of operating in a bloodless field and of draining the abscess through the area of devitalized skin. A granulating area remaining after the infection has been controlled, should be covered with a skin graft.

Mr. TOM PRICE was unable to be present owing to illness, and a paper of his reviewing the literature and describing a case of congenital flat foot, was read for him by Mr. HEDLY HALL. The deformity was difficult to treat as it nearly always relapsed.

Mr. DURBIN showed X-ray pictures of a mild case of congenital flat foot which had not been treated. Twenty years later, the patient had a good, painless, functioning foot. A recent X-ray showed that a pseudarthrosis had occurred between the navicular and the dorsum of the talus.

Clinical cases were demonstrated at the afternoon session by Mr. JOWETT and Mr. WINCKWORTH. Among many cases of great clinical interest were the closure of cavities in bone by muscle flaps and chip bone grafts, and a case of tuberculosis of the patella.

SOUTH WEST REGIONAL PAEDIATRIC CLUB

The *South West Regional Paediatric Club* met at Taunton on May 17th and 18th. Cases were shown and discussed by Dr. J. COATES and others, and the following papers were read:

Dr. A. H. BANTON: **"Mediterranean Anaemia."**
Dr. DAVIDSON: **"Twenty-five Years of Experience in Child Health."**
Dr. H. R. JOLLY: **"Sexual Precocity."**

SYMPOSIUM ON THE SUPRARENAL CORTEX

The Colston Research Society, which for many years has made grants in aid of research in the University of Bristol, has for some years arranged annual symposia on selected research topics of current importance. Four of these symposia have been held on Cosmic Radiation, Engineering Structures, Colonial Administration and The Universities and the Theatre. The Fifth Colston Symposium, on The Suprarenal Cortex, was held on April 1st, 2nd and 3rd. The scientific sessions were held in the Physics Lecture Theatre, and most of the members were accommodated at a nearby University Hall of Residence, Manor Hall. The organization was in the competent hands of Professor YOFFEY.

There were 136 members altogether including fourteen guest speakers. Among the visitors was a strong contingent from the United States, comprising Drs. LI, ASTWOOD, INGLE, ROBINSON and HOAGLAND. In addition, there were visitors from France, Belgium,

Holland, Denmark, Portugal, Madeira, Switzerland and Germany. Furthermore, a number of "locals", averaging about thirty per session, attended the symposium.

The full proceedings of the symposium will be published in a special Symposium Volume, and it would not serve any useful purpose to give a very brief and incomplete summary of the proceedings.

The broad plan was prepared so as to commence the proceedings with a consideration of the mechanism for controlling the activity of the suprarenal cortex. This part of the symposium centred mainly around *ACTH* and its action. In the second group of contributions were considered the nature of the cortical secretion and its action upon various parts of the body. Finally, there was a clinical session in which the surgical and medical applications of the various basic data were discussed.

The symposium on the whole passed off very smoothly, and the Physics Lecture Theatre proved to be an admirable hall for the meetings. The breaks for coffee and light refreshments between the sessions provided ample opportunity for the rather more vigorous and unrestrained discussion which constitutes so valuable a feature of these symposia.

Overseas visitors seemed to be particularly impressed by the fact that adequate time was allowed for the discussion, and at none of the sessions were members who wished to participate in the discussion precluded from so doing.

Programme of Discussions

1. THE PREPARATION AND ASSAY OF *ACTH*
Dr. C. H. Li, University of California, U.S.A.

2. THE PHYSICAL AND CHEMICAL PROPERTIES OF *ACTH*
Professor F. G. Young, Cambridge University.

3. THE PURIFICATION OF *ACTH*
Dr. C. J. O. R. Morris, The London Hospital, London.

4. THE SUPRARENAL CORTEX, THE STRUCTURAL BACKGROUND
Professor J. M. Yoffey, University of Bristol.

5. THE NATURE OF THE ADRENAL CORTICAL SECRETION
Professor F. Verzar, University of Basel, Switzerland.

6. CONTROL OF THE SECRETORY ACTIVITY OF THE SUPRARENAL CORTEX, WITH SPECIAL REFERENCE TO THE ISOLATED PREPARATION
Dr. Marthe Vogt, University of Edinburgh.

7. THE SUPRARENAL CORTEX AND THE GONADS
Professor S. Zuckerman, University of Birmingham.

8. THE METABOLISM OF THE ADRENO-CORTICAL STEROIDS
Professor G. F. Marrian, University of Edinburgh.

9. THE ROLE OF THE ADRENAL GLANDS IN INFECTION AND INTOXICATION
Dr. Harry J. Robinson, The Merck Institute, Rahway, U.S.A.

10. ADRENAL STEROIDS AND PERSONALITY DISORDERS
Dr. Hudson Hoagland, The Worcester Foundation, Shrewsbury, Mass., U.S.A.

11. CHANGES IN SUPRARENAL CORTEX FUNCTION IN SHOCK AND HORMONE TREATMENTS
Dr. R. E. Hemphill, Bristol Mental Hospital.

12. SUPRARENAL CORTEX ACTIVITY IN THE ENDOCRINE EQUILIBRIUM OF HUMANS
Dr. M. Reiss, Bristol Mental Hospital.

13. *ACTH*, STEROID HORMONES AND TISSUE CHANGES
Professor G. R. CAMERON, University College Hospital Medical School, London.

14. THE ROLE OF THE ADRENAL CORTEX IN HOMEOSTASIS
Dr. DWIGHT J. INGLE, Upjohn Company, Mich., U.S.A.

15. THE INFLUENCE OF THE SUPRARENAL CORTEX ON MINERAL AND WATER METABOLISM
Professor H. HELLER, University of Bristol.

16. THE SURGERY OF THE SUPRARENAL GLAND WITH ESPECIAL REFERENCE TO THE CORTEX
Mr. L. R. BROSTER, Charing Cross Hospital, London.

17. CLINICAL APPLICATIONS OF *ACTH* AND STEROID HORMONES
Professor GEORGE W. THORN, Harvard Medical School, Boston, Mass., U.S.A.

18. THE CLINICAL RESPONSES IN THE RHEUMATIC DISEASES
Dr. G. D. KERSLEY, Royal National Hospital for Rheumatic Diseases, Bath.

Annotation

THE TEACHING OF ANAESTHESIA IN EUROPE

As soon as the World Health Organization had been set up after the war, as an offshoot of the United Nations Organization, requests came from many countries in Europe for help in the development of anaesthesia. While it would have been possible for W.H.O. to grant Fellowships for European practitioners to study in Britain, where it was recognized that this subject was well advanced, the Organization's policy is to assist member countries by bringing experts to them to help in forming centres which can continue to develop later without assistance.

Accordingly, in 1950, an anaesthesia centre for Europe was set up in Copenhagen by the World Health Organization acting with the Danish Government. W.H.O. provided most of the teaching staff and the necessary equipment, and the Danish Government provided the accommodation and the clinical material. As a result of experience gained in the first year it was decided to co-ordinate the teaching under a Chief Instructor from Britain for a one-year course. Dr. R. WOOLMER, Bristol University Lecturer in Anaesthesia, appointed to fill this post, has just returned to Bristol on its completion. For part of the course he was assisted by Dr. V. T. BAXTER of Bristol United Hospitals. A number of practitioners from ten different countries in Europe have been given a strenuous course of practical and theoretical instruction, which is intended to put them on the right road to specialist rank. The W.H.O. has arranged for some of the more promising students to study for another six months at one or other of the teaching centres in Britain before returning to their own countries.

Correspondence

DEAR SIR,

I am already indebted to your *Journal* for the expression of my views on a " Maternity Service in Bristol ". I hope I may be allowed space to answer your correspondents.

The opinions of Dr. Sampson and myself are complementary and not antagonistic, as would appear. He wants " the general practitioner obstetrician as the mainstay of the service, *backed* by easily available, efficient, consultant and emergency services ". I hope he will read my article again and realize that what I have in mind is precisely this, only I used the word " supervised " instead of " backed ". I have already provided for him an emergency obstetric service (" Flying Squad "). I can only hope it is efficient. If I may pursue Dr. Sampson's analogy I would point out that the general practitioner is part of an obstetric team and as in all teams some players get more of the ball than others from the nature of their position on the field!

Dr. Mogg is not clear as to the advantages of a patient coming to a Consultant Clinic twice during her pregnancy although under the care of a general practitioner, yet in my article I pointed out that sometimes indications for admission to hospital had escaped notice. For example, I have seen in Bristol a woman with a major degree of pelvic contraction booked for home confinement. I feel sure that my personal contact with the general practitioners so far must have led them to appreciate my desire for close co-operation with them in this service and keen interest in the place that they should rightly occupy. Dr. Mogg will be interested in the following reasons given by patients as to their desire to have the baby in hospital or at home (Thomas, 1952).

" The reasons given for preferring a hospital confinement are as follows:

1.	Receive better care and attention in hospital and immediate medical help is available when needed	180
2.	No relatives to help if at home	38
3.	Too nervous to stay at home	29
4.	Costs less in hospital	18
5.	First baby	15
6.	No reason for choosing hospital	15
7.	Too much upset to house if she stayed at home	12
8.	Get more rest in hospital	11
		318

" The reasons given for preferring a home confinement are as follows:

1.	No one available to look after other children while mother is in hospital	34
2.	Feel happier at home	10
3.	Had previous children at home	8
4.	Going into hospital upsets the household too much	6
5.	No reason for choice	24
6.	Other reasons, e.g. nervous of hospitals; can rest longer at home; feels it is nicer for baby to be born at home, etc."	10
		92

It is interesting to see that only eighteen women out of 318 gave as a reason for preferring hospital confinement the fact that it costs less in hospital. It is also interesting that only ten women out of ninety-two felt happier staying at home to have the baby.

It is always dangerous to put one's ideas into writing as one is so often liable to misconstruction. It has been stated that I think all women should be delivered in hospital. This is not my opinion at all. What I am against are the makeshift arrangements for the labour-room in a house. Admittedly in a great majority of cases this arrangement may work well, but where difficulties arise the care of the woman in the home is not easy. I would prefer to see women have their babies in beds attached to hospitals or maternity homes, run by general practitioners and midwives, where proper labour-room facilities exist. When help is required it can then be provided in properly equipped surroundings. In this instance I should like to quote the words of a general practitioner—Dr. A. Talbot Rogers (1952). " If a growing percentage of confinements are admitted to hospital, it should also follow that a growing percentage of the women admitted to hospital will have normal labours, or will have such minor degrees of complication that their delivery will not be outside the competence of the midwife and the general practitioner obstetrician. In fact they will be the very patients that these two obstetric practitioners (separately or as a team) now deliver not unsuccessfully in the patient's own home. The same practitioners could, if allowed, conduct these labours even more efficiently in hospital. Their own competence would be no less for having the added assurance that should more serious complications supervene, specialist obstetric help would be available without delay and without the necessity of transporting a tiring or a gravely shocked patient from home to hospital. . . . The employment of the domiciliary midwife for an appreciable part of her time in the service of the hospital might go a long way towards easing present hospital staffing difficulties. . . . The association of the midwife with the hospital and with the general practitioner obstetrician could also lead to a diminishing need for separate local authority provision of ante-natal care."

It is evident therefore that I would like to see more general practitioner beds available in Bristol—but " supervised ".

G. Gordon Lennon.

REFERENCES

Thomas, R. C. (1952) Symposium of the Royal Sanitary Institute Health Congress. Margate, 146.

Rogers, A. Talbot (1952), *Ibid* 166.

Appointments

Bristol		*Formerly*
CROSS, E. G. W., M.R.C.S., D.P.M.	Registrar in Mental Health, Bristol Mental Hospitals.	R.A.M.C.
EHRMANN, E. H., L.D.S.	Registrar in Dental Surgery, United Bristol Hospitals.	S.H.O. Maxillofacial Unit, Wythenshawe Hospital, Manchester.
FOWLER, A. W., M.B., F.R.C.S.	Registrar in Orthopaedics, Winford Orthopaedic Hospital.	Orthopaedic Registrar, Halifax Hospital.
FERGUSON, A. W., M.B., M.R.C.P., D.C.H.	Registrar in Paediatrics, United Bristol Hospitals.	Paediatric Registrar, South Warwickshire Hospital Group.
GALL, W. J., M.B.	Demonstrator, Department of Anatomy.	
HALE, B. T., M.B., D.M.R.T.	Registrar in Radiotherapy, United Bristol Hospitals.	Senior House Officer, Radiotherapy, United Bristol Hospitals.
JEANES, E. W., M.B., D.P.H.	Assistant Venerologist, Bristol.	Assistant M.O.H., Rotherham.
LUKIANOWICZ, N., M.B., M.D.	Registrar in Mental Health, Bristol Mental Hospitals.	M.O. Polish Rehabilitation Centre, Brighton.
MITCHELL, J. P., M.B., F.R.C.S.	Consultant Urologist, Southmead Hospital.	Senior Registrar, Bristol United Hospitals.
PEACOCK, J. H., M.B., F.R.C.S.	Lecturer in Surgery, University of Bristol.	Rockefeller Scholar, U.S.A.
PENGELLY, C. D. R., M.B.	Registrar in Medicine, United Bristol Hospitals.	Senior House Officer, Glasgow Royal Infirmary.
RICHARDS, F. B., M.B.	Assistant Physician in Chest Diseases, Bristol.	Senior Registrar, Chest Diseases, Bristol.
STEEN, T. R., M.B., D.A.	Consultant Anaesthetist, Bristol.	Senior Registrar, United Bristol Hospitals.
TAYLOR, A. W., M.B.	Registrar in Mental Health, Bristol Mental Hospitals.	R.A.M.C.
WOOD, F. J. Y., M.B.	Registrar in Medicine, United Bristol Hospitals.	Travelling Scholarship, U.S.A.

		Formerly
Bath		
BRUCE-LOCKHART, P., M.B.	Registrar in Obstetrics and Gynaecology, Bath Group.	Re-appointment.
LONDON, P. S., M.B., F.R.C.S.	Senior Registrar in Orthopaedic and Traumatic Surgery, Bath.	Registrar, Birmingham Accident Hospital.
Gloucestershire		
DANCE, J. M., M.B., D.C.H.	Registrar in General Medicine, Gloucestershire Royal Infirmary.	Senior House Physician, Gloucestershire Royal Infirmary.
HACZKIEWICZ, S., M.D.	Assistant Physician in Chest Diseases, North Gloucestershire.	Junior Hospital Medical Officer, Standish House Sanatorium, Stonehouse.
Cornwall		
JACKSON, E. G. A., M.B.	Registrar in Anaesthetics, South Devon and East Cornwall Hospital.	Senior House Officer, Royal Devon and Exeter Hospital.
JOLLY, H. R., M.B., M.R.C.P., D.C.H.	Consultant Paediatrician, Plymouth.	Senior Registrar, Hospital for Sick Children, Great Ormond Street.

Notes and News

SENIOR DEGREES AND DIPLOMAS

M.R.C.P. (Ed.) *M.R.C.P. (London)*	Dr. S. L. Balse.
D.P.M. (London)	Dr. B. V. Earle.
D.C.H. (Dublin).	Dr. H. N. Saran.

PRIZES

Dr. S. Smith, Assistant Lecturer in Psychiatry and Physician, Barrow Hospital, has been awarded the Gaskell Medal and Prize 1952 of the Royal Medico-Psychological Association.

Dr. E. H. Hare, Tutor in Psychiatry and Physician, Barrow Hospital, has been awarded the Bronze Medal and Prize of the R.M.P.A. for 1952.

Dental Gold Medal (*Final B.D.S., December*, 1951)—Mr. J. P. Fletcher.

Thomas Francis Edgeworth and *Francis Henry Edgeworth Prize*—Mr. D. H. Wright.

Western Dental Mfg. Co. Prize—Mr. K. J. Mullan.

UNIVERSITY OF BRISTOL

Degrees of M.B., Ch.B. (Brist.)

June 1952

Appelbe, Frederick James
Arney, Kenneth Brian
Baggott, William Malcolm
Bailey, Helena Bozena Marie
Bennett, Bernard George
Brown, June Muriel
Brown, Stewart Harman
Cobb, Nigel John
Coles, Brian James Fitzwalter
Colston, Brian
Crook, Peter Austin
Duff, William John Peter
Edmondson, Kenneth William
Fawcett, Kenneth John Rhodes
Gawthorn, Edward Charles
(*Distinction in Obstetrics*)
Gear, Douglas John
Hamblett, Eric Percival
Higgins, Gerald Leslie
Hooper, Audrey Vera
Jackman, Michael Edward
(*Distinction in Obstetrics*)
Jenkins, John Ward
Jordan, Arthur Frederick
King, Marguerite Angela Ruth
Laxton, Pearl Desiree
Light, Joan Iris
Livesey, Brian
Lowther, Gordon Percy
Martyn, Sheila Ann
(*Distinction in Obstetrics*)
Otlet, Alan Benjamin
Prowse, Alison Winter
Sanerkin, Nedjdet Gurgen
(*2nd Class Hons.*)
Sellwood, Ronald Arthur
Walker, Andrew George
Wood, Geoffrey Holman
Worsley, David Eric

Professor R. J. BROCKLEHURST will give the Long Fox Memorial Lecture on October 21st, 1952, on **"Progress in Medical Education."**

We announce with regret the death of Mr. W. STUART V. STOCK, who was a student of the Medical School, 1892–98, and Demonstrator in Anatomy in the University from 1909–35 and Lecturer in Charge of the Department of Anaesthetics and Hon. Anaesthetist, Bristol Royal Infirmary, from 1929 until his retirement in 1935.

BRISTOL MEDICO-CHIRURGICAL SOCIETY

Dr. G. E. F. SUTTON, *M.C.*, Physician Bristol Royal United Hospitals and treasurer of the Society, has been elected President of the Bristol Medico-Chirurgical Society for the session 1952–53, on the resignation of Mr. E. WATSON-WILLIAMS.

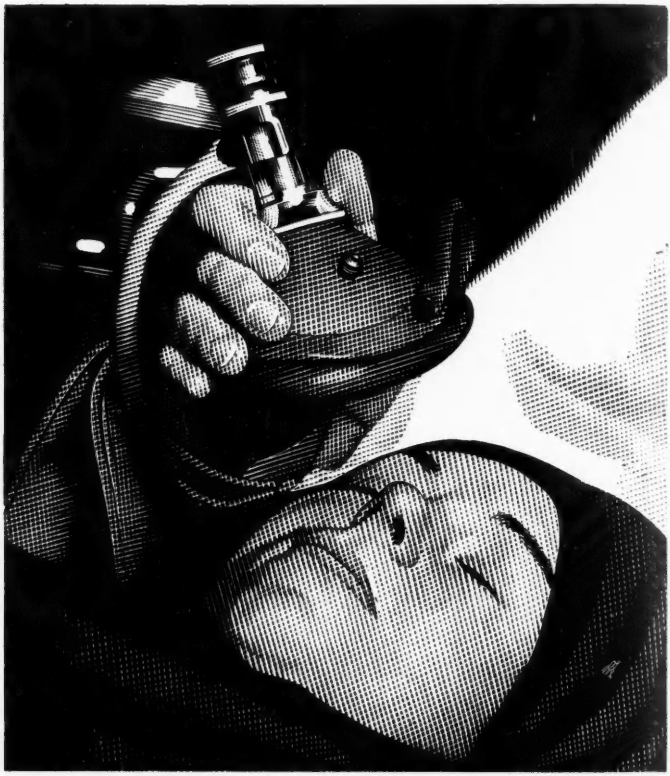
WESSEX RAHERE CLUB

The Autumn Dinner of the above Club will take place at the Grand Spa Hotel, Clifton, Bristol, on Saturday, October 25th.

It is hoped that, as usual, a member of the Staff will be present as Guest of Honour.

Membership of the Club is open to all Barts' men practising in the West Country.

Further details will be circulated to members and to any other Barts' men who are interested and who will get in touch with the Hon. Secretary, Mr. A. DAUNT BATEMAN of 3 The Circus, Bath.



Anaesthesia Now a highly specialised field of modern medicine, anaesthesia has made tremendous advances during the last fifty years. Technique has been perfected, and vastly improved apparatus has been designed and developed. In addition, the anaesthetist has at his disposal valuable new agents such as 'Kemithal', 'Trilene', cyclopropane, and d-tubocurarine, which provide him with an efficient answer to many of the anaesthetic problems he encounters.

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